1918—CHILDREN'S YEAR—1919
SUPPLEMENTARY REPORT ON JUNE DRIVE

County	Total Exam.	Total Defects	Defects Under 1 year	Defects 1-2 yrs.	Defects 2-3 yrs.	Defects 3-4 yrs.	Defects 4-5 yrs.	Defects 5-6 yrs.	Total Below H or W	Total Tonsil & Adenoid	Total Teeth	Health Centres	County Nurses
Amador	655	245	13	20	39	53	57	63	9	189	24	Plan	Plan
Del Norte...	115	85	0	18	18	20	11	18	51	44	16	Yes (1)	No.
Lassen	513	217	38	1	38	52	36	52	222	130	55	Doctors give time in office	
Napa	691	498	48	83	75	90	116	86	399	314	46	School Health Dep't	No.
Riverside....	538	...	Not segregated in report									Two	Two in Riverside
S.Bernardino	700	...	Not segregated in report									Three	(San Jose)
Santa Clara.	1236	376	35	30	54	68	89	100	66	236	51	Yes	Two (Palo Alto)
Stanislaus...	425	298	28	44	57	41	50	78	81	256	26	No	No
Sutter	412	56	2	7	9	8	7	23	95	37	8	No	No
*L. A. City..	4673	1530	144	174	225	289	342	356	355	1152	191	8 in op.	District Nursing
*L. A. Co...	2641	838	81	119	127	143	178	190	200	625	125		

*(Final report inclusive of preliminary)

Total No. weighed and measured: 12,599
Total No. complete medical examination, defects analyzed: 11,361
Total No. Defects: 4143, or 36 per cent.
Total No. below height and weight: 1478, or 13 per cent.
Total No. abnormal teeth conditions: 542, or 4½ per cent.
Total No. tonsils and adenoids: 2983, or 26 per cent.

session of the child,—a child's right—but the draft, school attendance, working privileges, and Americanization, all emphasize the value of a birth certificate, and in addition, an aroused medical conscience will soon put California on the Registration Area of the United States.

"Keep up our American Standards" must be the slogan of reconstruction, and every emphasis on the rights of the citizens is well placed now. If each doctor will fill out and record every baby's birth, the State will test out 100 per cent. in March, 1919.

ORIGINAL ARTICLES

INTRACRANIAL COMPLICATIONS OF DISEASES OF THE EAR, NOSE AND THROAT.—A REPORT OF SOME UNUSUAL CASES WITH AUTOPSY FINDINGS.*

By HILL HASTINGS, M. D., Los Angeles, Cal.

Symposium on Intracranial Complications of Eye, Ear, Nose and Throat.

Intracranial complications that have their origin in diseases of the nose and naso-pharynx are, in the majority of cases, due either to suppuration of the nasal accessory sinuses or to malignant growths of the naso-pharynx that spread into the cranial cavity with necrosis and suppuration as secondary results.

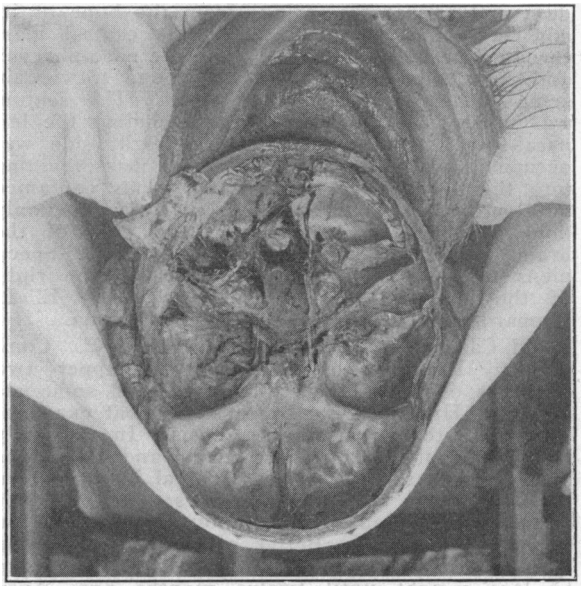
1. As to *suppuration of the nasal accessory sinuses as a cause of intracranial infection,* Onodi in 1911 (centralblatt fur Laryngologie) is quoted as having collected 106 cases in which cerebral abscess had occurred. It is not stated whether or not these included operated cases. Of the 106 cases, 82 were from purulent inflammation of the frontal sinus, 11 from the ethmoid, 4 from the maxillary antrum and 1 from the sphenoid. Very many cases of meningitis from purulent infection in the nasal accessory sinuses are, of course, not reported in literature. While it is recognized that such intracranial complications do occur, it is remarkable with all the cases of nasal sinus infection one sees in daily practice that intracranial complications do so seldom occur. One cannot but be strongly impressed with the fact that in proportion to the number of nasal cases, the number that result in intracranial complications is so extremely small. In many years of practice one seldom meets with a case in which an intracranial complication occurs from sinus disease. I can recall only two cases of brain abscess, both from frontal origin and both seen in consultation. I have not had a case in my own practice. The same is true so far as meningitis is concerned as a complication. On the other hand it is not so true when one comes to consider the number of intracranial complications that have resulted from radical operative measures in cases of chronic sinus infection. In such cases the mortality has been far too great in proportion to the number of cases operated. Here again very many fatal cases directly following radical sinus operations have never been reported. Take, for example, the problem of frontal sinus operation and consider the number of deaths following the Killian operation. Boenninghaus (quoted by Skillern) has collected 10 deaths in 375 Killian operations, or a mortality of 2.6 per cent. No one could ever imagine such a mortality from unoperated frontal sinus infection. Logan Turner on commenting on the deaths from the Killian operation expresses the opinion that the fatal meningitis is due to the spread of the infection through the internal bony plate, by reason of the curettement of the infected muco-periosteum of the sinus and the laying bare of bone cells with vascular pathways. The old Kuhnt operation, wherein the frontal sinus wound was left open to granulate from the bottom, although disfiguring when large cavities are dealt with, was nevertheless much the safer. It is safe to say that the era of external radical frontal sinus operations has about passed. For years American surgeons were led astray by over-enthusiasm for the supposedly efficient surgery advocated principally by the German and Austrian nose and throat surgeons. As to chronic ethmoid infection, here again one is struck by the comparative freedom from intracranial complications if no radical operation is attempted. And, as in frontal sinus infection, one is equally seriously impressed by the number of fatal cases that follow radical operations on the ethmoid. Just now, when radical ethmoid operations, of one sort or another, are being done it is timely to remember the experience of former days

* Read before the California State Medical Society, Del Monte, 1918.

of radical surgery on the frontal, and in remembering make us more cautious than ever in this surgical field. Here again it is true undoubtedly that the large majority of fatal results immediately following radical ethmoid surgery is not reported. For example, I have seen in consultation three such fatal cases and know of one other, none of which has been reported. In one case, a healthy woman of about 30, I was called in consultation at the suggestion of a neurologist who had been telephoned to for advice. The pseudo-specialist who had operated said he had been most successful in such cases. The patient, a healthy, strong woman, had been operated in his office 48 hours before. We found her unconscious with a spastic paralysis of one side of the body. There was a bloody opening through the ethmoid into the cranial cavity. While the untrained and inexperienced operator is the most dangerous, nevertheless a fatal result at times follows the work of an experienced and careful operator. In two of the other fatal cases no blundering surgery was done. The infection probably spread through the vascular pathways that were opened most likely by septic thrombosis of small veins leading into the cranial cavity. In the fourth fatal case mentioned the death was attributed to an old "latent tubercular meningitis," but inasmuch as the man was in good health at the time of the operation on the ethmoid and as a meningitis, evidently septic, rapidly developed (severe headache with fever and meningitis symptoms within 24 hours) one can but question the statement of a possible latent tubercular process. As to chronic sphenoid infection operative measures are nearly always confined to enlargement of the sphenoid ostium and a radical curettement of the muco-periosteum is rarely attempted, so that a chance for spread of infection is slight. The same applies to cases of chronic antrum infection, and here the location of the sinus, away from the cranial cavity, does not make an intracranial complication so possible.

2. *Malignant growths of the naso-pharynx.* It has been my opportunity to see five such cases. In three cases death occurred from intracranial complications, in two of which I was fortunate enough to see the post-mortem examination. In the other two cases the patients passed from observation.

1st Case, S. A. A., May 14, 1908, age 19, seen in consultation with Dr. Fleming and Mr. Macleish. The following history was given by Dr. Fleming: Family History—Father and mother living and in good health; an elder sister and younger brother healthy in appearance. A sister between the two, thin and feeble, looks tubercular. Personal History—Never ill except diseases of childhood; thin, tall and aged beyond his years. History of disease: On May 8, 1908, the patient came under observation complaining of pain in the right eye, right fronto. ethmoidal region and constant tendency to nose-bleed. Until six weeks ago had attended to farm work, enjoying his usual good health. About that time he began to have frequent bleeding from the right nostril, which he controlled by snuffing up cold water. Some two weeks ago he began to suffer great pain in the frontal region between the eyes, increased stoppage of the nose, nausea, insomnia and, at times, mental excitement. Physical examination: The patient presented the appearance of a very sick man. He was weak and unsteady in his gait, skin sallow, tongue a dirty brown and breath offensive. Tissues above and below right eye swollen and eyeball protruding. Pressure over lachrymal sac caused pus to appear at inner canthus. Right nasal cavity filled with dark grumous mass through which blood and pus exuded. Left side of nose blocked by deviated septum. On opening the mouth the right side of soft palate was seen to be bulging downward and forward; the naso-pharynx filled with a bluish mass which was very soft on palpation. Course of disease: Patient advised but declined to go to the hospital. Removed mass of imperfectly organized blood clots from the right nasal chamber. The following day, May 9, removed with Luc's nasal forceps a very large amount of broken down grumous-looking material from the right ethmoidal region. Considerable bleeding and flow of pus.



May 11th, operation repeated. Complains of pain in and about eye and back of head. General condition bad. Eye protrudes more than ever. May 12th, goes to California Hospital in the evening. May 13th, microscopic examination of blood by Dr. Leonard. Red cells 4,800,000; white cells 13,000; hemoglobin 90%; color index normal; differential count negative. On account of his mental dullness and inability to speak English, his examination notes are not full. The right eye is almost closed by swelling of both lids; eyeballs seem to protrude on raising lids. His tongue is dry, his mouth foul; soft palate bulging downward; right side of nose filled with bloody mass completely obstructed. His general condition is poor, dull, stuporous, fairly rational when aroused but with an anxious and restless appearance; no paralysis can be made out. Kernig sign is marked. Meningeal tache is marked. Temperature 101 degrees. Diagnosis of meningitis. Operation decided against. Lumbar puncture negative. From the time of admission to the hospital to the time of death, which occurred 44 hours later, temperature ranged from 101 to 102 (axilla). Pulse 68 to 110. Increasing restlessness and occasional delirium up to two hours before death, at which time he had a very free hemorrhage from the nose and naso-pharynx. This was followed by coma and death. Autopsy notes: Marked swelling of the orbital tissues especially on the inside. Calvarium removed. Upper surface of the brain looked normal. Under surface of the cerebrum showed pus here and there, especially marked in the interpenduncular space. Examination of the middle cranial fossa showed a marked change in

the anatomical landmarks of the body of the sphenoid and the greater wing on each side, due to a tumor mass occupying this region. The body of the sphenoid was occupied by a grumous mass fairly soft to the touch and no bony resistance felt. The curette passed into this mass, slipped downward into the naso-pharynx and right side of nose. On each side of the body of the sphenoid was found a mass of tissue resting on or taking the place of the greater wing of the sphenoid continuous with the central mass that occupied the body of the sphenoid. These lateral masses were white in color, coarsely fibular in structure resembling ordinary crab meat. That on the right side was about 1½ by 2 inches in dimension, extended forward to the anterior lacerated foramen and caused some considerable stretching upward of the optic nerve. The mass on the left side was similar in position and character but of less extent. All the sphenoid growth was under the dura and apparently springs from the bone or its covering. On curretting away the central mass through the body of the sphenoid the naso-pharynx and right side of the nose was found to contain semi-solid dark red clots of blood. The septum was pressed to the left, almost occluding the left nasal-fossa. The ethmoid of the right side was occupied by a grumous purplish mass bulging into the orbit. The right frontal sinus contained fluid yellowish green pus. (This was the only fluid pus seen except that on the base of the brain.) The left frontal sinus was normal. Specimens of the crabmeat-like growth on the right of the sphenoid were examined by Dr. E. L. Leonard, who reported spindle-cell sarcoma.

2nd Case. E. R., Sept. 12, 1906, age 42. Complaint: Paralysis of the 3rd, 4th upper two branches of the 5th and 6th nerves and some ear stuffing. History: Ear, nose and throat examination requested to aid in diagnosis. In the early part of trouble ear was affected and there has been some nasal discharge. General history given by Dr. Ross Moore as follows: Asthma for twenty years. Came from Illinois 13 years ago on account of asthma. Better of late since coming here. Normal weight 225. Six years ago began to lose weight until twelve months ago, April 10th, 1905, weighed 185. Was taken sick with chills and fever in December 1905 or 1906. Had trouble with right ear, worse when lying down, felt as if something rolled over in head. A short time after this the glands in the right side of neck began to swell. This was improved by Tr. Iodin and internal medication. April 19th, 1906—was operated on for supposed abscess on the right side of neck,—no pus found. Swelling had come up during one night and did not yield to poultices. Was well enough to work by June 25th and worked until August 1st, 1906, but did not feel well—felt as if he was losing ground. About the middle of July noticed that right nostril and right side of palate became numb, then right upper lip. At the same time he had a sensation as if a bug had flown into right eye and was moving around in it. This numbness has greatly extended. Four weeks ago suddenly began to have diplopia; things appearing side by side in lower field. At extreme upper limit of vision the field is normal. Two weeks later the right upper lid began to droop and this has gradually grown worse. For several years he has had occasional foul-smelling wax taken out of right ear. Never had dizziness, explosive vomiting, fever, or mental symptoms of any kind. Has not noticed diminished vision or hearing. For four or five months has had tasting discharge from naso-pharynx, dropping back into the throat. Knee jerk, elbow jerk and wrist jerk active and equal. Pupils react to light and accommodation. Palatal fold low on right side. Facial movements normal. Right masseter muscle atrophied. Right anterior half of tongue anesthetic to touch, taste and pain. Facial anesthesia as per diagram. Right ear hears watch 6 inches; left ear 2½ feet. Right eye shows tendency to turn downward and inward. Sept. 5, 1906—right eye shows tendency to turn outward. Two images above each other directly in front. Two images below on same level, one in front 1½ feet. No contraction of field vision. Dilated pupils from atropine. Ophthalmoscopic examination of the right eye,—disc not sharply outlined. No apparent opacity of fluid in anterior chamber. Arteries not clear. Epitrochlear glands not enlarged, nor axillary glands; neither spleen nor liver enlarged. A little dullness and roughness in upper part of left lung. Some bronchial breath sounds. Emphysematous chest. Pulse after examination 120. Sept. 8, 1906, anesthesia extending lower on face. Patient has had no temperature during 48 hours. Right eye ground more distinct. Anesthesia of face extending into lower max. div. of fifth. Right eye moves slightly downward and to the left Pupils equal and react to light. Ptosis complete. special ear history rather indefinite and of no significance. Ear: Six months ago had feeling in right ear as if something loose moved around. Never any ear discharge, noise, deafness or pain in the ear, but pain above in front of the ear for months, worse of late. No dizziness, no sudden vomiting, no chills or fever, no stupor, no dullness, no diminished vision, but diplopia. Nose: Some discharge from back of nose, not thick nor purulent, somewhat streaked with blood, not coughed up but hawked. No constant purulent discharge; no difficulty in nasal breathing. Throat: No special trouble,—little trouble in swallowing. Examination: Ear normal, except catarrhal changes. Nose: Normal except loss of sensation on right side. No signs of pus or polyp or any indications of suppuration of the accessory sinuses of the nose. Naso-pharynx—with mirror the mucosa of the vault of pharynx is seen to be red, thick and bulges downward. Palpation shows marked bulging of floor of sphenoid. Throat: Negative except glands (cervical) enlarged on both sides. Physical signs together with history exclude brain abscess or accessory sinus disease and points to a growing tumor of the sphenoid region, likely sarcoma. Bad prognosis expressed. Nov. 15—Patient seen again with Dr. Moore. Condition worse, has lost weight. Glands in the neck on both sides have enlarged considerably, bulging at the base of the sphenoid, causing symptoms of pharyngeal abscess. Considerable post-nasal discharge of bloody pus; pain in the head has increased, requiring opiates. Opinion again expressed that operation would be of no value. Died about Dec. 10th, 1906. Autopsy by Dr. Moore: Chest organs normal except black lungs from coal soot. Liver shows several white nodules with broken down centers. Nodules in mesentery. Skull cap rather adherent. Dura normal. Apparently whole right side of cerebrum softer than left but markedly so about Rolandic fissure. Vessels all engorged on right side. Left side of cerebrum easily lifted from base of skull. Much resistance on right side. Brain torn away from a fairly solid tumor as large as a hen's egg lying in the middle fossa encroaching on optic chasm. Tumor nodular and apparently attached to body of sphenoid bone. A portion of the body of greater wing of sphenoid bone removed with tumor. Microscopic examination of the tumor by Dr. E. L. Leonard showed a round-cell sarcoma.

3rd Case. B. R. L., July 21, 1910, age 52. Complaint: Pain in left side of head, hawking blood. History dates back to Nov. 1909. Began to snuff back little blood and had a tender, painful spot behind mastoid. Pain so severe now unable to sleep at night, except in short spells. About 6 weeks ago was treated by an osteopath. After treatment blood increased so he stopped. Spat up as much as a teacupful in half an hour. No chill or fever. No discharge from the nose. Had discharge from

right ear, slight amount, but none from the left. Deafness appeared in this ear since this trouble began. Deafness in right ear. Buzzing noise both ears. No cough. Weight 167. Apparently good health. Weight was up to 180 lbs. two years ago. Examination: Naso-pharynx, decided bulging to the left, oval in shape with two smaller bulgings on each side. Mucous membrane seems slightly red but otherwise normal. No pus seen. Septum deflected slightly to the left, otherwise nose negative. Mt. left, dulled, retracted, scarred, no perforation, no pus seen. Pain referred to about 2½ inches above and behind external ear. No thickening seen or felt. Pain shoots at times upward to the top of the head and downward to the eustachian tube and behind neck. Right ear—slight sour odor to discharges. Canal swollen deep down, apparently covered in deeper part with granulations, blocking up good view of the drum. Granulations seen coming from the middle ear, evidently old chronic condition. Transillumination—Antra fair, orbits fair, pupils fair. Frontals moderate size, fair illumination. No pus washed out of nose. No pus either front or back. July 25, 1910—patient is still suffering considerably and spitting up little blood and he says pus which he thinks comes from left side of throat behind nose. The soft palate shows a decided tendency to rise to the right. Some sluggishness of the left side. Believe it is due to the thickening on the left side rather than to actual paralysis. Introducing finger into naso-pharynx shows swelling marked and spat up quite a little blood after using finger. Could not be sure of any fluctuation. Is taking K. I. one-half strength, 38 drops to a dose, increasing two drops each time. Also aspirin internally. Aug. 5, 1910. Ten days since last visit. Been unable to take any more K. I. for a week—upset his stomach. Feels, if anything, a little better, is satisfied not so much pain in head. Is not spitting up blood lately, none for three or four days. Not much discharge now. Slight streak of blood along pharyngeal wall left side. Bulging seen on the left side, seems to be on the line with the eustachian tube involving the posterior lip of it and extends upward to about the level of the floor of the sphenoid and slight swelling seen in the floor of the sphenoid. No soreness along the eustachian tube. Feb. 10, 1911, died. Note: Practically no medical attention several months before he died. Sister-in-law says he gradually wasted away, suffered a good deal of pain in the head. No paralysis or brain symptoms.

In the two patients that passed from observation each complained of pain and deafness in one ear. Examination in each case disclosed a tumor in the naso-pharynx, bulging downward from the floor of the sphenoid. Malignant growth was the diagnosis made in each case and operation not advised. One of these patients earnestly requested operation and I referred him to Dr. Harmon Smith of New York, May, 1911, who believed the growth was malignant. Dr. Smith reported by letter that he had removed a piece of tissue from the bulging tumor in the naso-pharynx which on microscopic examination proved to be a sarcoma. He referred the case to Dr. George Brewer who advised against operation. There were two negative Wassermann examinations in this case.

EAR CASES WITH INTRACRANIAL COMPLICATIONS.

No attempt has been made in this paper to review the commonly known intracranial complications such as meningitis, sinus thrombosis and brain abscesses secondary to middle ear suppuration. Attention is directed to

(1) A case of caries of the petrous bone secondary to chronic middle-ear suppuration. This case was reported by the writer in the "Archives of Otology" in 1906. It might interest you in reviewing the subject of this paper to show a photograph of the base of the skull and give a brief history of the case. The case made a lasting impression on the writer because of the fact that at the autopsy the real cause of the fatal meningitis was at first overlooked. In fact the writer had left the autopsy room with a feeling of chagrin at the failure to find what was supposed to exist. A determination to go back and search again resulted in finding this interesting petrous bone necrosis which had been entirely hidden by the firmly attached dura that covered the petrous bone. Only when the dura was carefully elevated from the bone was the honey-combed caries of the petrous seen. A photograph was at once made which shows very plainly the true condition. The petrous bone was honey-combed with purulent areas of caries to its very tip. A comparison of the two petrous bones in this photograph will show you better than a detailed description the unusual complication that caused death in this case. The history was briefly as follows:

A chronic ear discharge for many years in a man of about 70 years of age; sudden onset of pain and fever with marked mastoid tenderness. The patient was brought to the writer from a neighboring town,—the mastoid was acutely tender. A mastoid operation was at once done in the presence of the consultant, Dr. Wm. A. Edwards of Los Angeles, and pus and necrotic bone with foul cholesteatoma found to exist. The dura of the middle fossa was exposed by the caries. No evidence of brain abscess existed and the brain was not explored. After operation the condition of the patient did not improve; headache increased, the fever continued and nystagmus appeared. Delirium quickly followed and in five days the patient died of meningitis. The cause of the meningitis was supposed to be an acute labyrinthine involvement, or direct spread of infection from the mastoid area to the meninges or to a brain abscess that had ruptured. The autopsy failed to show a brain abscess and also failed to show any evidence of direct spread of the infection from the mastoid. The internal ear was not carefully examined at autopsy so that its condition was not determined, but labyrinthine suppuration undoubtedly existed. The petrous necrosis was found as related above. Several years afterwards the writer showed this photograph to Dr. Gorham Bacon, who expressed the opinion that in this case likely the petrous pyramid was unusually cellular (which sometimes occurs), and that the suppuration had gradually spread into the petrous cells from the middle ear. The mastoid disease being so evident it was but natural that the petrous disease was overlooked. At autopsy both petrous bones looked alike until, as explained above, the dura was carefully stripped off of the bones.

(2) A case of tempero-sphenoidal brain abscess secondary to chronic middle ear suppuration, operated successfully eight years ago. Recent attack of severe dizziness; demonstration of fistula in the horizontal semi-circular canal, reoperation; caries of labryinthine walls found; recovery. This brief summary is sufficient to bring out the main facts that prompt reporting this case.

G. C., male, age 35, seen at Santa Ana, May 1910, because of severe headache without mastoid signs. There was hardly any discharge and no odor. The M. T. was thick, not red, with an

old round perforation. Weber to the diseased side, hearing to forks and to conversation still exists, though reduced. No chill, no dizziness, no pain, except severe headache on the side of the diseased ear. Temperature 101 degrees; mental condition normal; no increased reflexes; no nystagmus. Intracranial disease as the result of chronic suppuration was suspected as being the cause of severe headache and fever. The operative indications were discussed but, after considerable consultation, it was determined to defer operation for more positive signs. Five days later the writer was hurriedly summoned because of the development of slight delirium. The headache had continued severe with nausea and vomiting. Within an hour after the onset of the delirium the patient was stuporous with muttering delirium. Immediate operation disclosed caries and some pus in the deeper part of the mastoid. The exposed dura was thickened but not apparently bulging. Brain exploration upward and forward with a thin flat blade knife failed to locate pus. Exploration upward and backward, however, struck the abscess at a depth of at least one inch from the outer surface of the brain. The patient made an uneventful recovery. In Sept. 1917, seven and one-half years after this operation, the patient was sent back to the writer by Dr. G. H. Dobson of Santa Ana because of dizziness and vomiting. The ear canal contained pus and a protruding polyp. The patient had been free of symptoms for the intervening years except for a scanty ear discharge. Fistula test by gentle pressure produced horizontal nystagmus to the opposite side. Caries of the semicircular canal was diagnosed and operation advised. The patient requested delay for business reasons. The polyp was removed, alcohol drops given and in a few days the dizziness had disappeared, as did also the fistula symptoms. Six months later, March 1918, the patient returned on account of severe dizziness and vomiting and pain and tenderness over the mastoid scar which was somewhat bulging and red. The fistula symptoms again were elicited not only by pressure in the ear canal but also by pressure over the mastoid swelling which was demonstrated by the writer and also by Dr. E. W. Fleming, who was seen in consultation. Reoperation disclosed caries of the labyrinthine wall with fistula of the horizontal semi-circular canal and also two fistulas in the facial canal, one in its horizontal course in the inner tympanic wall and one in its perpendicular course through the mastoid. The tympano-mastoid cavity was filled with foul-smelling cholesteatomatous material and pus. The hearing test before and after operation showed no involvement of the eighth nerve. No labyrinthine and no facial symptoms followed the radical middle-ear exenteration. The patient has made an uneventful recovery.

DISPENSARY TREATMENT OF DIABETICS.*

ARTHUR STANLEY GRANGER, M. D., Los Angeles.

The problem of the treatment of ambulatory diabetics, particularly among the uneducated class, has always been a serious one. The educated individual can more often be made to realize the value of keeping within his or her sugar tolerance, while it is hard to impress upon the dispensary class the necessity of strict care in the diet; most of them not realizing its importance, so long as they can attend to their daily duties with a minimal amount of discomfort. It is with this group of dispensary patients that we have to deal in this paper.

Since the work of Allen and Joslin, it has been shown rather definitely that within certain limits, after a preliminary course of treatment, the diabetic can, by giving his co-operation, be treated satisfactorily at home, and enjoy health and attend to his business with comparatively little discomfort, and need report to his physician but occasionally. This applies to the average well-to-do individual, but what are we to do with those patients who either cannot afford to seek the advice of a specialist, or even afford to pay a general practitioner's fee, and in consequence come to the dispensary for relief? It is to such cases that the class system of treatment applies. This idea has been for some time in successful operation in Boston, New York and Chicago, and recently a class has been organized in the University of California dispensary in Los Angeles. The general plan is this: The patients present themselves, not individually, but as a class; the history of each is taken on a special blank provided for the purpose, and a general physical examination of each is made. They usually bring a specimen of urine the first day and this is tested for the sugar content, and for acid bodies. They are then told in simple language, such of the fundamental principles of the disease as they can understand, and of the results which may be expected to follow careful treatment and of the complications which may occur when treatment has been neglected. The importance of rigidly adhering to diet is strongly impressed upon them, and the necessity of absolute regard to the amount and kind of food outlined for them.

They are shown one of the simple tests for the detection of sugar in the urine (Benedict's solution is the one adopted) and the ferric chloride test for diacetic acid. Each patient is then instructed to bring to the next clinic a sample of a twenty-four-hour specimen of urine, a printed blank stating just how to collect this specimen being given each one. This twenty-four-hour urine is more carefully tested quantitatively for various abnormal ingredients and others of the more complicated tests done as the condition of the patient warrants. Should any patients present a type of the disease serious enough to require such special watching and attention as could not be given at weekly intervals, they are sent to the hospital, their sugar tolerance estimated and worked up, and only allowed to leave when they present sufficient evidence of being able to keep themselves sugar and acid free, under the weekly supervision of the clinic.

Cases of moderate severity are starved until the urine is sugar and acid free, and are then started on the following diet, a printed slip with the diet and instructions to eat or drink nothing else being given them:

Three eggs (two breakfast, one supper). Three ounces of meat or fish (dinner).

Two tablespoonfuls of 5 per cent. vegetables, two at a meal.

A clear beef or chicken broth without thickening or vegetables, to be taken three or four times a day.

* Read before the Forty-seventh Annual Meeting of the Medical Society of the State of California, Del Monte, April, 1918.